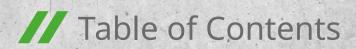


Method Statement

Damp and Wet Room Waterproofing with the KÖSTER BD System





KØSTER Waterproofing Systems

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KØSTER Waterproofing Systems

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General information

1.1 Scope

This method statement is intended for use by developers, contractors and applicators as a general guideline for the application of the waterproofing KÖSTER BD System.

While this document describes the tools, equipment, materials and step by step process for preparing and installing the waterproofing system, it must be used and referred to in combination with all other relevant technical information available for the product and its components.

1.2 Manufacturer

KÖSTER BAUCHEMIE AG
Dieselstraße 1-10 Tel. 04941/9709-0
D-26607 Aurich

info@koster.eu www.koster.eu



1.3 Definitions

Crack bridging

Crack-bridging waterproofing means that a waterproofing system remains intact even though the substrate has cracked. Often "crack-bridging" is confused with "elastic". An elastic material may be far from waterproof when stretched. An elastic material may also be waterproof under normal circumstances, but not once water pressure is applied.

Elasticity

It is the ability of a body to resist a distorting influence and to return to its original size and shape when that influence or force is removed. Solid objects will deform when adequate loads are applied to them; if the material is elastic, the object will return to its initial shape and size after removal.

Elongation at break

Is a measurement that shows how much a material can be stretched — as a percentage of its original dimensions — before it breaks. This is also referred to as per-

cent elongation, which is a measurement of the amount a material will plastically and elastically deform up to fracture. The material's final length is compared with its original length to determine the percent elongation and the materials ductility.

Water vapor diffusion

refers to the process by which water molecules move through a material or medium from an area of higher concentration to an area of lower concentration. This movement occurs due to the concentration gradient, where water vapor molecules naturally tend to spread out to achieve equilibrium. Water vapor diffusion is a significant factor in various natural and industrial process, including the movement of moisture through building materials, the drying of materials, and the regulation of humidity in the atmosphere. It plays a crucial role in understanding phenomena such as condensation, evaporation, and the overall moisture balance in different environments.

2 System description

2.1 System features

The KÖSTER BD system is a complete system for waterproofing e.g. kitchens, bathrooms and wet rooms underneath tiles.

2.2 Characteristics/Advantages

- Flexible and crack-bridging system
- Highly elastic
- Easy to apply
- Mechanically and chemically resistant (hydrolysis, alkalinity, chemicals)
- Scratch resistant
- Liquid waterproofing: no seams or overlaps

- Odorless
- Non-flammable
- Connections and repairs are easy to make
- Good adhesion to the substrate
- Can also be used with underfloor heating
- Perfect surface for applying tile with tile adhesives
- Waterproofing of joints and pipe penetrations

2.3 Main products and components



KÖSTER BD 50

KÖSTER BD 50 is a single component ready for use, solvent free and easy to apply sealing compound for waterproofing surfaces under tiles and coverings in damp and wet rooms. Once applied to the substrate, it cures to a highly flexible, waterproof synthetic foil which is highly elastic and crack bridging.

See online



KÖSTER BD 50 Primer

Special primer for the KÖSTER BD System on dry and absorbent substrates. Penetrates deeply into the substrate creating an excellent bonding bridge for the subsequent waterproofing.

See online



KÖSTER BD 50 Contrast

Liquid contrast for coloring KÖSTER BD 50 before applying the second layer. Visual inspection will be simplified through color differentiation of the second waterproofing layer.

See online



KÖSTER BD Flex Tape K 120

Joint sealing tape for the secure bridging of joints, wall / floor and wall / wall junctions and in areas prone to cracking. Specially designed for the KÖSTER BD System. An elastomer strip with protruding mesh for the secure integration into the waterproofing area.

See online



KÖSTER BD Inside Corner

Ready to use, elastic moulded part for the waterproofing of inside corners in the KÖSTER BD System. Made of NBR-rubber with protruding mesh for the secure integration into the waterproofing area.

See online



KÖSTER BD Outside Corner

Ready to use, elastic moulded part for the waterproofing of outside corners in the KÖSTER BD System. Made of NBR-rubber with a protruding mesh for the secure integration into the waterproofing area.

See online



KÖSTER BD Wall Sleeve

Ready to use, elastic moulded part for the waterproofing pipe penetrations in the KÖSTER BD System. Made of NBR-rubber with an protruding mesh for the secure integration into the waterproofing area.

See online



KÖSTER BD Floor Sleeve

Ready to use, elastic moulded part for the waterproofing of floor drains in the KÖSTER BD System. Made of NBR-rubber with protruding mesh for the secure integration into the waterproofing area.

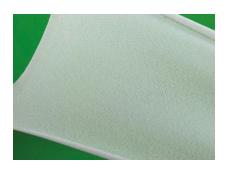
See online



KÖSTER Superfleece

High strength polyester nonwoven reinforcement fabric for liquid water-proofing products such as KÖSTER BD 50. To reinforce waterproofing in cornerns and other areas prone to cracking and to connect to gutters, gullies and similar custom details.

See online



KÖSTER Flex Fabric

Highly flexible, tear-resistant fabric for the reinforcement of thin-layer waterproofing, especially in areas prone to cracking, penetrations or wall / floor junctions. Finely wove, synthetic.

See online



KÖSTER BD Flexible Tile Adhesive

Single component, mineral flexible adhesive for all mineral building materials in construction. In combination with the KÖSTER BD System suitable for waterproofing wet rooms.

See online

2.4 Associated products



KÖSTER SB Bonding Emulsion



KÖSTER WP Mortar

See online



KÖSTER PU-Flex 25

See online

See online



KÖSTER Repair Mortar Plus

See online

2.5 Associated literature

- Technical Data Sheet 🗹
- System brochure Waterproofing of wet rooms 2
- <u>Product Declaration of Performance BD 50 DIN EN</u> 14891 (German) ☐

Tools and Equipment 3.1 Tools



KÖSTER Brush for slurries



Trowel



KÖSTER Resin Roller (150 mm, 250 mm)



Mixing buckets (10 l, 30 l)

3.2 Equipment



Single paddle mixer



KÖSTER Special Caulking Gun without extension

3.3 Cleaning

Clean all tools and equipment immediately after use with water. Cured and hardened material can only be mechanically removed.



Environmental, health and safety

4.1 Personal Protection Equipment (PPE)

The following is a short overview of Personal Protective Equipment and serves only as a guideline. Contractors and Employers are responsible for meeting the occu-

pational safety guidelines in their countries, states, and localities.



Eye protection

Employers must be sure that their employees wear appropriate eye and face protection and that the selected form of protection is appropriate to the work being performed and properly fits each worker exposed to the hazard.

Head protection

Employers must ensure that their employees wear head protection if any of the following apply: Objects might fall from above and strike them on the head; they might bump their heads against fixed objects, such as exposed pipes or beams; or there is a possibility of accidental head contact with electrical hazards.

Foot and Leg Protection

Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials should wear protective footwear.

Hand Protection

When selecting gloves to protect against exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions. Gloves commonly used are: Coated fabric gloves and Chemical - and Liquid - Resistant Gloves

Hearing protection

Suitable hearing protection must be provided for the job environment.

4.2 Material safety & First Aid

Every KÖSTER product is labeled with specific information and symbols as to the related dangers. Please consult the respective Material Safety Data Sheet for specifics.

If inhaled:

Remove person to fresh air and keep comfortable for breathing. In all cases of doubt, or when symptoms persist, seek medical advice. Inhalation of dust may cause irritation of the respiratory system.

After contact with skin:

After contact with skin, wash immediately with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice.

After ingestion:

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Call a physician in any case!

In case of contact with eyes:

Rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist. Following eye contact: Risk of serious damage to eyes.

4.3 Waste disposal

Disposal recommendations

Do not allow to enter into surface or drains. Dispose of waste according to applicable legislation.

Contaminated packaging

Water (with cleaning agent). Completely emptied packages can be recycled.

Fields of application

5.1 General examples

- Waterproofing wet and damp rooms such as bathrooms
- Waterproofing kitchens
- Waterproofing car washes
- Waterproofing showers in a sport or commercial facilities

5.2 An example for Waterproofing a bathroom



1. Primer

2. Inside corners

3. Outside corner

4. Wall / floor and wall / wall junctions

5. Wall penetrations

6. Floor drains

7. Waterproofing layer

8. Tile adhesive

KÖSTER BD 50 primer

KÖSTER BD Inside Corner

KÖSTER Superfleece (alternative)

KÖSTER BD Outside Corner

KÖSTER Superfleece (alternative)

KÖSTER BD Flex Tape K 120 KÖSTER Superfleece (alternative)

KÖSTER BD Wall Sleeve

KÖSTER Superfleece (alternative)

KÖSTER BD Floor Sleeve

KÖSTER Superfleece (alternative)

KÖSTER BD 50 (first coat) KÖSTER BD 50 Contrast +

KÖSTER BD 50 (second coat)

" (Second coat)

KÖSTER BD Flexible Tile Adhesive

Installation process:

- Before installing the waterproofing system, defects larger than 5 mm are to be filled flush with KÖSTER Repair Mortar Plus. Allow for 24 hours to cure before priming and applying the KÖSTER BD 50.
- Voids and defects smaller than 5 mm are to be filled with KÖSTER BD 50. In case of cracks larger than 0.5
- mm, bridge the crack with KÖSTER Superfleece adhered and overcoated with KÖSTER BD 50.
- Apply the KÖSTER BD 50 Primer with a brush, roller, or it can be sprayed. Allow for 1 – 2 hours to cure.
- Apply first a layer of the KÖSTER BD 50 on inside and outside corners then embed the prefabricated corners

- and cover fresh in fresh with the KÖSTER BD 50. Alternatively, the KÖSTER Superfleece can be used instead.
- Apply first layer of the KÖSTER BD 50 on wall / wall and wall / floor junctions. Carefully embed the KÖSTER Flex Tape K 120 and cover fresh in fresh with the KÖSTER BD 50. Alternatively, the KÖSTER Superfleece can be used instead.
- Apply first a layer of the KÖSTER BD 50 around the pipe penetrations. Carefully slide the KÖSTER Wall Sleeve into the still fresh layer and cover fresh in fresh with the KÖSTER BD 50. Alternatively, the KÖSTER Superfleece can be used instead.
- A measurement for the floor drain is taken into account so an opening and same shape cut are done in the KÖSTER Floor Sleeve so it can fit perfectly. Apply

- a layer of the KÖSTER BD 50 and embed carefully the KÖSTER Floor Sleeve and fresh in fresh cover it with the KÖSTER BD 50
- Start by applying the KÖSTER BD 50 with a minimum of 2 layers on all walls and floor. Allow at least 3 hours before commencing the next layer.
- For the second layer the KÖSTER BD 50 Contrast is added and mixed with the KÖSTER BD 50 for enhanced visual control.
- For optimal results allow the material to dry for a minimum of 20 hours before further worker is undertaken.
- The final finish with the installation of tiles can be carried out with KÖSTER BD Flexible Tile Adhesive.

6 Substrate preparation 6.1 Project site conditions

6.1.1 Application temperature

The waterproofing system should be applied at temperatures between +5 °C and +35 °C.

6.1.2 Relative humidity

Relative humidity should not exceed 85 % as it may affect the final results and curing process.

6.2 Substrate requirements

Suitable substrates include masonry, plasters, plywood, gypsum plaster boards, and cement boards-, anhydrite- and magnesite screeds and all kinds of ceramic coverings.

The substrate has to be dry, solid, supportive and level as well as free of oil, grease, dust and other separating

layers. Residual adhesives and paint as well as any loose plaster or masonry must be removed.

Roughening of non-absorbent substrates such as glazed tiles by sandblasting is recommended prior to the application of the waterproofing coat.

6.3 Surface preparations for non-absorbent substrates

It is recommended for non-absorbent substrates to be roughened by sanding prior to the application.



6.4 Levelling & repairing the surface

- Defects and voids larger than 5 mm are leveled flush with the surface in advance with KÖSTER WP Mortar or KÖSTER Repair Mortar Plus.
- Defects and voids smaller than 5 mm must be filled in advance with the KÖSTER BD 50.
- In case of cracks larger than 0.5 mm the cracks are bridged with a layer of KÖSTER BD 50 into which
- KÖSTER Superfleece is then embedded as a reinforcing layer and overcoated with KÖSTER BD 50.
- In areas susceptible to cracking or to strengthen the waterproofing according to the project needs, KÖSTER Flex Fabric can be embedded into the first fresh layer of KÖSTER BD 50. Under normal conditions, area reinforcement is not required.

6.5 Priming the surface

Prime the surface with KÖSTER BD 50 Primer which is designed for application on dry and moist absorbent surfaces. It reduces the absorbency of mineral substrates and increases its strength. It is transparent after drying and slightly sticky. The entire surface area should be primed, floor drains, around pipe penetrations, junctions, walls and

the floor. Allow the primer to cure for at least 1 to 2 hours before proceeding with the waterproofing layers. KÖSTER BD 50 Primer can be applied by brush, roller or it can be sprayed. The consumption varies depending on the type of the substrate, between 50 – 150 g/m².









7 Application techniques

7.1 Mixing of the KÖSTER BD 50

KÖSTER BD 50 is a single component, ready to use product, solvent free waterproofing compound designed to ensure optimal protection for wall and floor surfaces in bathrooms and wet rooms.

KÖSTER BD 50 must be stirred for a minute in the original bucket to reach a homogenous consistency before using.





7.2 Applying KÖSTER BD 50

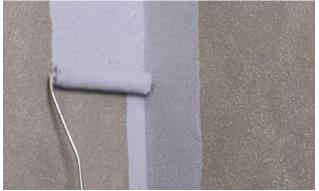
KÖSTER BD 50 can be applied by a brush or by a roller. KÖSTER BD 50 is applied in minimum 2 layers and the final dry thickness must be at least 0.5 mm in order to form a consistent, continues flexible coat.

For an effective waterproofing application, we recom-



mend using the pre-fabricated accessories in critical areas. These include the corners, junctions, floor drain and wall penetrations.

The consumption varies depending on the type of the substrate, between $0.4 - 0.6 \, \text{kg/m}^2$ per coat.



7.3 Installation of the Reinforcement

Reinforcing critical areas can be either done using the preformed pieces that are designed specifically for the KÖSTER BD system or making special cuts with the KÖSTER Superfleece for designated areas.



By seamlessly integrating the reinforcement, we are able to achieve unparalleled strength and flexibility, ensuring that your bathroom not only meets but exceeds the highest standards of safety and longevity.



7.3.1 Inside corners

For inside corners, begin by generously applying a layer of KÖSTER BD 50, extending approx. 10 cm up the wall and 10 cm across the floor.

Embed into this fresh layer the elastic preformed piece KÖSTER BD Inside Corner. Ensure the fabric edges of the KÖSTER BD Inside Corner are completely covered with KÖSTER BD 50.







Alternatively, you can reinforce inner corners using a tailored piece of the KÖSTER Superfleece, measuring approx. 20 cm in length. Fold this fabric strip in the middle and make a centered cut halfway through. This prepared

KÖSTER Superfleece piece is then embedded into the still fresh layer of KÖSTER BD 50, and it should be overworked with KÖSTER BD 50 for comprehensive coverage.









7.3.2 Outside corners

For outside corners, begin by generously applying a layer of KÖSTER BD 50, extending approx. 10 cm up the wall and 10 cm across the floor.

Embed the KÖSTER BD Outside Corner into this fresh layer, and ensure that the fabric edges are overworked, ensuring a complete coverage with KÖSTER BD 50. The entire process is executed fresh in fresh as well, eliminating the need for any drying time.







Alternatively, you can reinforce outside corners using a tailored piece of the KÖSTER Superfleece. In this case, two pieces are required: a strip measuring approx. 20 cm in length and a square piece roughly 10 x 10 cm. Fold this fabric strip in the middle and make a centered cut halfway

through. Similarly, fold the square piece into a triangle and

cut it halfway through as well. Embed the strip of KÖSTER Superfleece into the still fresh layer of KÖSTER BD 50, ensuring comprehensive coverage with KÖSTER BD 50. As for the square piece, place it with the cut side facing upwards and cover it with an additional layer of KÖSTER BD 50.

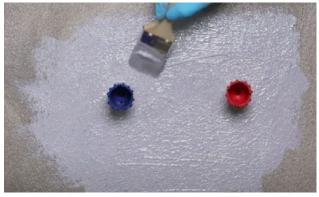




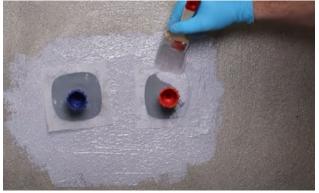
7.3.3 Pipe penetrations

Around pipe penetrations, preparation is vital to maintain a watertight seal. Begin by creating a prepared area with a minimum radius of 15 cm around the pipe penetration. The designated area is coated with a layer of KÖSTER BD

50. Now, carefully slide the KÖSTER BD Wall Sleeve over the end of the pipe, and ensure that the fabric edges are overworked, ensuring a complete coverage with KÖSTER BD 50.



Alternatively, a tailored cut piece with the size of approx. 10 x 10 cm made of KÖSTER Superfleece can be used. Fold and cut this fabric circularly in the middle, creating an opening. This is done manually and should be executed so that the KÖSTER Superfleece can still stretch over



the blind plug. The tailored cut piece is embedded in the pre-applied layer of KÖSTER BD 50. After this, completely overwork the KÖSTER Superfleece with an additional layer of KÖSTER BD 50.





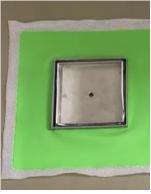
7.3.4 Floor drain

The installation of the KÖSTER BD Floor Sleeve is a critical component of ensuring a waterproof and reliable floor drain system. The KÖSTER BD Floor Sleeve should be precisely positioned above the floor drain and an opening of the same size and shape as the floor drain is cut into the KÖSTER BD Floor Sleeve. Importantly, it should overlap approx. 3 mm inwards into the drain.

The surface where the KÖSTER BD Floor Sleeve will be applied must be thoroughly prepared with a layer of KÖSTER BD 50. Carefully embed the KÖSTER BD Floor Sleeve into the still fresh layer of KÖSTER BD 50., ensuring that it adheres securely and seamlessly. It is crucial to pay close attention to the fabric edges of the KÖSTER BD Floor Sleeve, making sure that the fabric is entirely covered with KÖSTER BD 50.

As an Alternative, a floor sleeve can be made using the KÖSTER Superfleece around the installed floor drain. The tailored cut piece is embedded in the pre applied layer of KÖSTER BD 50. After this, completely overwork the KÖSTER Superfleece with an additional layer of KÖSTER BD 50.







7.3.5 Wall / wall and wall / floor junctions

The KÖSTER BD Flex Tape K 120 is an exceptional waterproofing tape, with high flexibility and is specifically designed to address critical waterproofing and high-risk areas.

For wall / wall junctions, start by applying a generous layer of KÖSTER BD 50, covering approx. 10 cm across each side of the wall. Within the fresh layer of KÖSTER

KGSTER Languagement BD 50, carefully embed the KÖSTER BD Flex Tape K 120. To ensure a reliable seal, take extra care to overwork the fabric edges of the KÖSTER BD Flex Tape K 120, ensuring a full coverage with KÖSTER BD 50.

The same procedure is applied when reinforcing horizontal on the wall / floor junction, ensuring that this area receives the same high-quality protection.

















7.4 Application of KÖSTER BD 50 with KÖSTER BD 50 Contrast

The application of the second waterproofing layer of KÖSTER BD 50 is a crucial step in ensuring comprehensive waterproofing. To enhance the precision of this process and enable a visual inspection of the second layer in relation to the first, we introduce KÖSTER BD 50 contrast. KÖSTER BD 50 Contrast is introduced into the ready to

KOSTER

apply KÖSTER BD 50 and homogenized by employing a slow rotating electrical mixer. Once the KÖSTER BD 50 Contrast is mixed in, the application of the KÖSTER BD 50 is performed. The consumption is 100 g / 10 kg KÖSTER BD 50.



KÖSTER BD 50 is applied to the entire on the wall and floor surface using a roller or a brush. To minimize disruption and ensure a flawless application, it is recommended to begin by waterproofing all the walls and conclude with the floor areas.

After waiting for 3 hours, proceed to apply a second waterproofing layer to the floors, mixed with KÖSTER BD 50 Contrast for enhanced visual control.



1st layer on the floor



2nd layer with KÖSTER BD 50 Contrast on the floor

7.5 Tile application with KÖSTER BD Flexible Tile Adhesive

For optimal results, allow the completed waterproofing system to dry for a minimum of 20 hours before any further work is undertaken.

The KÖSTER BD Flexible Tile Adhesive is an essential component in the KÖSTER BD System.

The KÖSTER BD Flexible Tile Adhesive is mixed with 7.0 to 7.5 liters of clean water. It is applied using a notched trowel and secure the tiles into the fresh adhesive.





Consumption rates

Primer: KÖSTER BD 50 Primer

- Approx. 50 g/m² on lightly absorptive substrates (pre-cast concrete, fiber cement boards, cement screeds, etc.)
- Approx. 150 g/m² on highly absorptive substrates (lime sandstone, light weight concrete, gypsum plasters, etc.)

Coating: KÖSTER BD 50

Up to 1.2 kg/m²: approx. 0.4 - 0.6 kg/m² per coat or (approx. 0.8 - 1.2 kg/m² per 2 coats)

Liquid contrast: KÖSTER BD 50 Contrast 100 g/10 kg KÖSTER BD 50

Tile adhesive: KÖSTER BD Flexible Tile Adhesive Approx. 1.7 kg/m² per mm layer thickness



General notes

9.1 Material storage

Store the material cool but frost free. In originally sealed packages it can be stored for a minimum of 12 months.

9.2 Packaging



Primer: KÖSTER BD 50 Primer 5 kg jerrycan



Coating: KÖSTER BD 50 10 kg bucket



Contrast: KÖSTER BD 50 Contrast 500 ml bottle

9.3 Important considerations

- Do not apply KÖSTER BD 50 on damp cementitious substrates or on substrates which are subject to rising damp.
- Whenever necessary, sloped surfaces should be created in order to avoid puddle formation.
- Do not apply the KÖSTER BD 50 alone to cover and protect cracks in the substrate.
- KÖSTER BD 50 must be protected from mechanical damage by the use of ceramic or stone tiles.
- No gaps or cracks in the substrate are acceptable.
- The final dry thickness of KÖSTER BD 50 must be at least 0.5 mm in order to form a consistent, continues flexible coat.
- For best results, always use the KÖSTER BD Flexible Tile Adhesive for laying and adhering tiles.
- A 1 m² test area can be applied to determine the consumption of the primer and the material.

1 Certifications

Test report 857/18/SG from the "Institute of Ceramics and Building Materials" Krakau, Poland according to DIN EN 14891by

11 Legal disclaimer

This method statement reflects general cases with standard parameters. It is not suitable as a step-by-step guide for all and each waterproofing project as the conditions on site at the moment of the application cannot be foreseen. It is solely the applicator's responsibility to

decide on the actual procedure considering the specific situation on the construction site. In any case, KÖSTER's Terms of business are valid and can be viewed under www.koester.eu